

RECEIVED

A4

rows of grooves and at least one third row of grooves arranged between the lateral rows, wherein the grooves of each row are circumferentially spaced from one another, wherein the grooves of the lateral rows axially extend from respective shoulder ends of the tyre to predetermined distances from the equatorial plane of the tyre, wherein all of the grooves are separate from one another so as to produce a pattern with no intercommunicating paths between the grooves, wherein ends of the grooves of the at least one third row are far from the shoulder ends of the tyre, and wherein end portions of the grooves of the at least one third row extend outside a footprint of the tyre, a greater dimension of each of the grooves of the at least one third row relative to a length of the tyre footprint allowing water drainage from underneath the tyre footprint.

17. (new) The tyre of claim 16, wherein a maximum distance between two points of each groove of the at least one third row, measured in a circumferential direction, is greater than the length of the tyre footprint when the tyre is inflated to a nominal operating pressure and subjected to a nominal load under static conditions.

18. (new) The tyre of claim 16, wherein each groove of the at least one third row comprises a substantially straight portion extending at a predetermined inclination angle with respect to a circumferential plane between a first end far from a first shoulder end of the tyre and a second end far from a second shoulder end of the tyre.

LAW OFFICES

FINNEGAN, HENDERSON,  
FARABOW, GARRETT,  
& DUNNER, L.L.P.  
1300 I STREET, N.W.  
WASHINGTON, DC 20005  
202-408-4000

19. (new) The tyre of claim 18, wherein the grooves of the at least one third row comprise two end portions of the substantially straight portion shaped according to curved arcs having opposite curvatures to one another.

20. (new) The tyre of claim 16, wherein the grooves of a first lateral row have a form different from the grooves of a second lateral row.

21. (new) The tyre of claim 16, wherein each groove of a first lateral row starts from a first shoulder end of the tyre, terminates in a first straight portion forming an acute angle having a predetermined value with respect to a plane parallel to the equatorial plane of the tyre, and has a direction opposite to that of a second straight portion of each groove of a second lateral row.

22. (new) The tyre of claim 16, wherein the grooves of a first lateral row extend from a shoulder end of the tyre with inclinations having, with respect to a plane parallel to the equatorial plane of the tyre, a direction opposite to that of the grooves of a second lateral row.

23. (new) The tyre of claim 16, comprising a fourth row of grooves circumferentially spaced from one another and separate from those of the lateral rows of grooves and the at least one third row of grooves, the grooves of the fourth row starting from a shoulder end of the tyre, between two adjacent grooves of a lateral row, and terminating between two adjacent grooves of the at least one third row.

LAW OFFICES

FINNEGAN, HENDERSON,  
FARABOW, GARRETT,  
& DUNNER, L.L.P.  
1300 I STREET, N.W.  
WASHINGTON, DC 20005  
202-408-4000

24. (new) The tyre of claim 23, wherein the grooves of a first lateral row and the grooves of the at least one third row form first trajectories, wherein the grooves of the fourth row and the grooves of a second lateral row form second trajectories, wherein the first trajectories and the second trajectories alternate with one another and are circumferentially spaced, wherein the first trajectories and the second trajectories have a substantially undulating shape with peaks aligned on a circumferential plane parallel to the equatorial plane of the tyre, the first trajectories having an interruption between the grooves of the first lateral row and the grooves of the at least one third row, and the second trajectories having an interruption between the grooves of the fourth row and the grooves of the second lateral row.

25. (new) The tyre of claim 16, comprising a fifth row of grooves arranged between the lateral rows circumferentially spaced from one another and separate from those of the lateral rows of grooves and the at least one third row of grooves, the at least one third row of grooves and the fifth row of grooves being symmetrical with one another relative to the equatorial plane of the tyre.

26. (new) A tyre for vehicle wheels provided with a tread pattern, wherein the tread pattern is defined between two shoulder ends of the tyre axially opposite with respect to an equatorial plane of the tyre, wherein the tread pattern comprises several rows of grooves and at least one internal row of grooves circumferentially spaced from one another, comprising means for acoustically signalling an air pressure value lower than a predefined limit, wherein the means consists of a first dimension, in a direction of travel, of one or more grooves of the at least one internal row greater than a second dimension of a footprint of the tyre in a same direction,

0985930  
JAN 19 1990  
FBI

AR

LAW OFFICES

FINNEGAN, HENDERSON,  
FARABOW, GARRETT,  
& DUNNER, L.L.P.  
1300 I STREET, N. W.  
WASHINGTON, DC 20005  
202-408-4000

measured with the tyre inflated at a nominal operating pressure and subjected to a nominal load under static conditions, so that, in case of pressure values lower than the predefined limit, the second dimension of the tyre footprint assumes a quantity at least equal to the first dimension of the one or more grooves of the at least one internal row, first causing air retention in the one or more grooves of the at least one internal row during contact with the ground, and then causing instantaneous expulsion of at least some of the air when at least one portion of the one or more grooves of the at least one internal row are outside the tyre footprint.

27. (new) A method for checking a value of air pressure inside a tyre for vehicle wheels, wherein the tyre comprises a tread band provided with a tread pattern defined between two shoulder ends of the tyre axially opposite one another relative to an equatorial plane of the tyre, comprising the steps of:

forming in the tread pattern between the two shoulder ends at least one row of grooves which are circumferentially spaced from one another;

assigning to at least several successive grooves of the at least one row at least one first dimension which is greater than a second dimension of a tyre footprint under inflation conditions and under nominal load;

checking, under static load conditions with a tyre air pressure below a predefined value, whether the at least one first dimension of the at least several successive grooves is suitable for allowing enclosure of air underneath the tyre footprint and expulsion of the air with noise outside the tyre footprint; and

RECEIVED  
JUN 10 1993

NY

LAW OFFICES

FINNEGAN, HENDERSON,  
FARABOW, GARRETT,  
& DUNNER, L.L.P.  
1300 I STREET, N. W.  
WASHINGTON, DC 20005  
202-408-4000

if an outcome of the checking step is negative, modifying the at least one first dimension and a number of grooves of the at least several successive grooves until an acoustic signal indicating a lower air pressure inside of the tyre is produced.

28. (new) An acoustic signalling device for vehicle wheels provided with a tread pattern, comprising several groups of grooves and at least one internal row of a plurality of grooves circumferentially spaced from one another, wherein one or more predetermined grooves of the at least one internal row have a first dimension greater than a second dimension of a footprint of the tyre measured with nominal tyre air pressure values under a static load and a first dimension smaller than or equal to the second dimension of the tyre footprint measured with tyre air pressure values lower than a predefined limit.

29. (new) A tread band for vehicle tyres provided with a tread pattern defined between two shoulder ends axially opposite one another relative to an equatorial plane of the tyre and comprising at least one lateral row and one central row of grooves extending in a direction substantially longitudinal to a direction of forward travel of the tyre, the at least one lateral row and one central row of grooves defining an essentially continuous portion of tread band between the two shoulder ends and being suitable for producing a directional pattern, wherein ends of the grooves of the central row are located at predetermined distances from the shoulder ends.

30. (new) A method for indicating a reduction in an inflation pressure of a tyre having a tread pattern, comprising the step of:

LAW OFFICES

FINNEGAN, HENDERSON,  
FARABOW, GARRETT,  
& DUNNER, L.L.P.  
1300 I STREET, N. W.  
WASHINGTON, DC 20005  
202-408-4000